

WHAT IS CLAIMED IS:

1 1. In a computer system having an operating system and one or more
2 devices, a method for testing a device, the method comprising:

3 determining a device driver for the device;
4 determining a class to which the device driver belongs; and
5 performing a diagnostic test based on the class of the device driver.

1 2. The method of claim 1 wherein the step of determining a device driver
2 occurs while the operating system is active.

1 3. The method of claim 1 further comprising coordinating access to the
2 device prior to the step of performing a diagnostic test.

1 4. A method for performing diagnostics on a computer hardware device
2 having a device driver for interfacing with the computer hardware device, the method
3 comprising:

1 publishing capabilities of the device driver;
2 receiving the capabilities of the device driver; and
3 performing a diagnostic test on the computer hardware device, based on the
4 capabilities of the device driver.

1 5. The method of claim 4 wherein the step of receiving capabilities of the
2 device driver further comprises identifying capabilities of the device driver by a diagnostic
3 module.

1 6. The method of claim 4 further comprising coordinating access to the
2 computer hardware device prior to the step of performing a diagnostic test.

1 7. The method of claim 5 wherein the step of performing a diagnostic test
2 further comprises testing the computer hardware device using the diagnostic module.

1 8. The method of claim 4 further comprising determining the device
2 driver is for interfacing with the computer hardware device.

1 9. The method of claim 4 wherein the step of publishing capabilities of
2 the device driver further comprises broadcasting that the device driver is capable of accessing

3 the computer hardware device in parallel with a diagnostic module after allocating an area of
4 the computer hardware device for testing.

1 10. The method of claim 4 wherein the step of publishing capabilities of
2 the device driver further comprises broadcasting that the device driver is capable of accessing
3 the computer hardware device in parallel with a diagnostic module if the device driver is
4 notified by the diagnostic module when testing is complete.

1 11. The method of claim 4 wherein the step of publishing capabilities of
2 the device driver further comprises broadcasting that the device driver is capable of accessing
3 the computer hardware device in parallel with a diagnostic module if the device driver is off-
4 line.

1 12. The method of claim 4 wherein the step of publishing capabilities of
2 the device driver further comprises broadcasting that the device driver is capable of being
3 passed through to access the computer hardware device.

1 13. The method of claim 4 wherein the step of publishing capabilities of
2 the device driver further comprises broadcasting that the device driver is capable of being
3 passed through when in diagnostic mode to access the computer hardware device.

1 14. The method of claim 4 wherein the step of publishing the capabilities
2 of the device driver further comprises broadcasting that only diagnostics embedded in the
3 device driver may perform diagnostics on the computer hardware device.

1 15. The method of claim 1 further comprising allocating an area of the
2 device for testing the device.

1 16. The method of claim 15 wherein the step of performing a diagnostic
2 test is done directly on the area allocated, and further comprises the step of releasing the area
3 allocated when the test is concluded.

1 17. In a computer system having an operating system and at least one
2 hardware device, a diagnostic hardware access layer interface for performing diagnostics, the
3 interface comprising:

4 a device driver belonging to a class of device drivers for managing the
5 hardware device;

6 a kernel module for communicating with the device driver and the operating
7 system; and
8 a diagnostic module for coordinating with the kernel module and/or the device
9 driver in order to perform diagnostics on the hardware device.

1 18. The interface of claim 17 wherein the device driver is capable of
2 publishing the class to which it belongs.

1 19. The interface of claim 17 wherein the kernel module identifies the
2 class of the device driver.

1 20. The interface of claim 17 wherein the device driver is capable of
2 accessing the hardware device in parallel with the diagnostic module.

1 21. The interface of claim 17 wherein the kernel module is capable of
2 determining whether diagnostics are performable on the hardware device.

1 22. The interface of claim 17 wherein the class of the device driver is
2 dependent on the hardware device.

1 23. The interface of claim 17 wherein the class of the device driver is
2 dependent on the mode of the device driver.

1 24. The interface of claim 17 wherein the class of the device driver is
2 dependent on both the mode of the device and the hardware device.

1 25. The method of claim 4 wherein the step of publishing the capability of
2 a device driver further comprises broadcasting that the device driver is capable of accessing
3 the computer hardware device in parallel with a diagnostic module

1 26. A system for testing one or more devices attachable to a computer
2 system, comprising:

3 a device access kernel, wherein said device access kernel is capable of
4 identifying a device driver associated with a device and determining what class said device
5 driver belongs to; and

6 a plurality of diagnostic tests designed to respectively test said one or more
7 devices;

- 8 wherein said device access kernel selects one of said plurality of diagnostic
9 tests for testing said device based on said determined class.